

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 10-141698
 (43)Date of publication of application : 29.05.1998

(51)Int.Cl. F24F 1/00

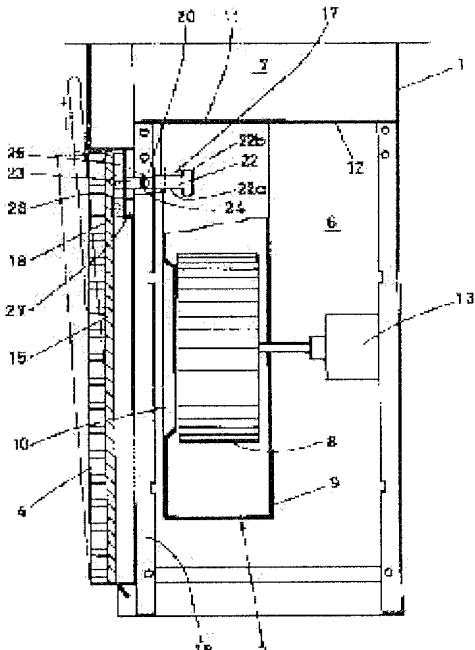
(21)Application number : 08-292896 (71)Applicant : DAIKIN IND LTD
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(54) FLOOR TYPE AIR CONDITIONER

(57)Abstract:

PROBLEM TO BE SOLVED: To allow obtaining of safety at the time of replacing a filter and serviceability at the time of inspection and maintenance to be compatible by regulating opening of a suction grill and eliminating the regulation of the opening.

SOLUTION: In the floor type air conditioner having a blower 2 and a heat exchanger disposed in a casing 1 and a suction grill 4 having a detachable filter 15 disposed at a front surface side of the blower 2 and openably provided on a front surface of the casing 1, an opening regulating means 17 for regulating the opening of the grill 4 to a size possible to attaching or detaching operation of the filter 15 and impossible to insert hand or finger and eliminating the regulation is interposed between the grill 4 and the casing 1. Thus, obtaining of safety at the time of replacing the filter and improvement in serviceability at the time of inspection and maintenance are made compatible.



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CLAIMS

[Claim(s)]

[Claim 1] A fan (2) and a heat exchanger (3) are allocated in a casing (1). It is the floor type air conditioner which formed a suction grill (4) which equipped a front face of said casing (1) with a filter (15) which is located in the front-face side of said fan (2), and can be detached and attached freely enabling free opening and closing. Between said suction grill (4) and said casing (1), A floor type air conditioner interposing an opening regulating means (17) of which this

regulation can be canceled while regulating an opening of said suction grill (4) in a size in which detaching operation of said filter (15) is possible and, which cannot insert fingers.

[Claim 2]A locking hole (21) in which said opening regulating means (17) was provided at said casing (1) side, A locking tool (22) stopped to this locking hole (21) at the time of given stroke sliding to front sides while being inserted to this locking hole (21), enabling free sliding, Said floor type air conditioner according to claim 1 consisting of a fixing screw (24) which combines a fixture (23) attached to said suction grill (4), and this fixture (23) and said locking tool (22).

[Claim 3]Said floor type air conditioner according to claim 2 forming a notched hole (25) where the end side was wide opened while inserting said fixing screw (24) in said fixture (23).

[Claim 4]In said fixture (23). Said floor type air conditioner according to claim 2 forming an engaging hole (26) which consists of a wide-diameter hole (26b) which is open for free passage with a narrow-diameter hole (26a) which inserts in a shank of said fixing screw (24), and this narrow-diameter hole (26a), and has a bigger inside diameter than a head of said fixing screw (24).

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]The invention in this application relates to the opening regulating structure of the suction grill in a floor type air conditioner in more detail about a floor type air conditioner.

[0002]

[Description of the Prior Art]Generally a floor type air conditioner allocates a fan and a heat exchanger in the casing of longwise rectangular parallelepiped shape, It is constituted so that it may blow off from the blow-off grill in which the harmony air cooled, or heated and obtained by said heat exchanger in the indoor air inhaled from the suction grill established in the front face of said casing was provided by the front face of said casing to the interior of a room (for example). Refer to JP,1-167544,U.

[0003]

[Problem(s) to be Solved by the Invention]By the way, in a floor type air conditioner, there are two kinds such as the type which allocates a fan in the leeward side (namely, the blow-off grill side) of a heat exchanger, and the type which allocates a fan in the windward (namely, the suction grill side) of a heat exchanger. Since the filter for performing dust removing of suction air is built in the suction grill, it is necessary to exchange filters and to enable opening and closing of a suction grill to a casing.

[0004]However, if the opening is freed when opening and closing of a suction grill are enabled, as described above, If there is a possibility of inserting a hand in an inner direction accidentally from the opening and rotary machines, such as a fan, are allocated in the inner direction when the open operation of the suction grill is carried out greatly, a hand may touch a rotary machine. In

the case of what is the windward of a heat exchanger and formed the fan in the lower part in a casing especially, the above-mentioned anxiety becomes much more remarkable from the place where the position of a suction grill becomes low.

[0005]When apparatus, such as a fan, is allocated in the inner direction of a suction grill and maintenance inspection of these apparatus is performed, it is necessary to make a suction grill into an opened state.

[0006]The invention in this application was made in view of the above-mentioned point, and an object of the invention in this application is to aim at coexistence with reservation of the safety at the time of filter replacement, and reservation of the workability at the time of maintenance inspection by enabling it to cancel this opening regulation, while regulating the opening of a suction grill.

[0007]

[Means for Solving the Problem]In basic constitution of the invention in this application, the fan 2 and the heat exchanger 3 are allocated in the casing 1 as a means for solving an aforementioned problem, In a floor type air conditioner which formed the suction grill 4 which equipped said casing 1 front face with the filter 15 which is located in the front-face side of said fan 2, and can be detached and attached freely enabling free opening and closing, Between said suction grill 4 and said casing 1, while regulating an opening of said suction grill 4 in a size in which detaching operation of said filter 15 is possible and which cannot insert fingers, the opening regulating means 17 of which this regulation can be canceled is interposed.

[0008]Although the open operation of the suction grill 4 is carried out by having constituted as mentioned above at the time of filter replacement, the suction grill 4 is regulated by the opening regulating means 17 by size in which the opening of detaching operation of the filter 15 is possible and which cannot insert fingers in that case. Therefore, although exchange of the filter 15 can be performed easily, fingers cannot be put into a method of the inside of the casing 1, but touching a rotary machine of fan 2 grade carelessly located in an inner direction is lost. If regulation by said opening regulating means 17 is canceled, the suction grill 4 can be opened freely and can perform easily maintenance inspection of apparatus of fan 2 grade currently allocated by method of the inside of the casing 1.

[0009]The locking hole 21 in which said opening regulating means 17 was formed in basic constitution of the invention in this application at said casing 1 side, The locking tool 22 stopped to this locking hole 21 at the time of given stroke sliding to front sides while being inserted to this locking hole 21, enabling free sliding. When the fixing screw 24 which combines the fixture 23 attached to said suction grill 4, and this fixture 23 and said locking tool 22 constitutes, it becomes also structurally easy while becoming possible to form the opening regulating means 17 in a position which does not become the obstacle of indoor air inhaled from the suction grill 4. And if a tool is not used, that deregulation by the opening regulating means 17 is performed carelessly disappears from a place which cannot loosen the fixing screw 24.

[0010]The notched hole 25 where the end side was wide opened while inserting said fixing screw 24 in said fixture 23 is formed, Or when the engaging hole 26 which consists of the wide-diameter hole 26b which is open for free passage with the narrow-diameter hole 26a which inserts in a shank of said fixing screw 24, and this narrow-diameter hole 26a, and has a bigger inside diameter than a head of said fixing screw 24 is formed, Combination with the fixture 23 and the locking tool 22 will be canceled only by loosening without unscrewing the fixing screw 24 (if it puts in another way, regulation by the opening regulating means 17 will cancel), and while operativity improves, it becomes easy [both recombination].

[0011]

[Embodiment of the Invention]Hereafter, with reference to an attached drawing, the suitable embodiment of the invention in this application is explained in full detail.

[0012]This floor type air conditioner allocates the fan 2 and the heat exchanger 3 in the casing 1 of longwise rectangular parallelepiped shape, as shown in drawing 1 and drawing 2, It is constituted so that it may blow off from the blow-off grill 5 in which harmony air W' cooled, or heated and obtained by said heat exchanger 2 in the indoor air W inhaled from the suction grill 4 established in the front lower part of said casing 1 was provided in the front top of said casing 1

to the interior of a room. That is, the suction grill 4 and the blow-off grill 5 are established in the lower end part and the upper bed part in casing 1 front face.

[0013]Said fan 2 is used as the centrifugal type blower which wraps the multi vane impeller 8 entirely by the scroll type fan casing 9, and is allocated in the fan room 6 formed in the inner direction of said suction grill 4 with the posture which made the suction opening 10 positive, and the opening 13 by which the delivery 11 of said fan 2 was formed in the divider plate 12 which divides the inside of said casing 1 into said fan room 6 and the heat exchange room 7 in which it is located above this fan room 6 -- ***** -- having -- *** . The numerals 13 are fan motors.

[0014]Said heat exchanger 3 is allocated so that the inside of said heat exchange room 7 may be divided into a cross direction, and the back may fall and it may become an inclination posture. The numerals 14 are drain pans.

[0015]And a front difference of said suction grill 4 is made possible by making the lower end side into a supporting portion, and it is built in the inside, enabling free attachment and detachment of the filter 15. It is to insert and pull out this filter 15 and to be carried out from the upper bed side, to the filter frame 16 formed in said suction grill 4.

[0016]Between said suction grill 4 and said casing 1, the opening regulating means 17 which regulates the opening of said suction grill 4 in the size in which the detaching operation of said filter 15 is possible and, which cannot insert fingers is interposed.

[0017]The locking hole 21 established in the stationary plate 20 which adhered to the support 18 provided in the both sides corner in said casing 1 on the screw 19 as this opening regulating means 17 was shown in drawing 3 and drawing 4, The locking tool 22 stopped to this locking hole 21 at the time of given stroke sliding to front sides while being inserted to this locking hole 21, enabling free sliding, It consists of the fixing screw 24 which combines the fixture 23 attached to both sides of said suction grill 4, and this fixture 23 and said locking tool 22.

[0018]Said locking tool 22 consists of the slide part 22a inserted to said locking hole 21 enabling free sliding, and the suspending portion 22b which is really formed in the inner end of this slide part 22a, and is engaged from the inside to said locking hole 21 at the time of given stroke sliding to the front. That is, engagement to the suspending portion 22b and the locking hole 21 is to make opening regulation of the suction grill 4. Said locking hole 21 may be directly formed in the support 18 of the casing 1.

[0019]While inserting said fixing screw 24 in said fixture 23, the notched hole 25 where the end side (namely, the upper bed side) was opened wide is formed. This notched hole 25 is larger than the outer diameter of the shank of the fixing screw 24, and let it be an inside diameter smaller than the outer diameter of a head. Only by loosening without unscrewing the fixing screw 24 by having constituted in this way, since it becomes possible to make the fixing screw 24 secede from the notched hole 25, the connection release or recombination of the locking tool 22 and the fixture 23 can carry out very easily.

[0020]As shown in drawing 5, even if it forms the engaging hole 26 which consists of the wide-diameter hole 26b which is open for free passage in the upper part of the narrow-diameter hole 26a which replaces with said notched hole 25 and inserts the shank of said fixing screw 24 in said fixture 23, and this narrow-diameter hole 26a, and has a bigger inside diameter than the head of said fixing screw 24, The same operation as the above is expectable.

[0021]By the way, although the locking tool 22 and the fixture 23 are formed in both sides of the casing 1 and the suction grill 4 and he is trying for the opening of the suction grill 4 to become equal by both sides, it may be made to provide each in the casing 1 and the right and left center part of the suction grill 4 in this embodiment.

[0022]Although said suction grill 4 has the adsorption power of the permanent magnet 27 fixed to the support 18 located in both sides of the casing 1, and the adsorption piece 28 provided in both sides of said suction grill 4 be to hold a closed condition as shown in drawing 6, Said adsorption piece 28 is attached to the right-and-left upper and lower sides (namely, direction shown by the arrow M in drawing 6) rockable via the shoulder bolt 29 to the suction grill 4, as shown in drawing 7.

[0023]Said adsorption piece 28 consists of the adsorption part 28a by which said permanent magnet 27 is adsorbed, and the fitting part 28b which is installed right-angled from this

adsorption part 28a, and is attached by the shoulder bolt 29 to said suction grill 4. On the other hand, said shoulder bolt 29 consists of the thread part 29a screwed in the screw hole 30 formed in said rib 18, and the screw-less part 29b made into the major diameter from the thread part 29a succeeding this thread part 29a. The insertion hole 31 into which the screw-less part 29b of said fixing screw 29 fits loosely is formed in the fitting part 28b of said adsorption piece 28.

[0024]It is to be attached to the support 18 by the shoulder bolt 29 in the above-mentioned composition, after the adsorption piece 28 has fitted the screw-less part 29b loosely into the insertion hole 31, It is to suppose at the right-and-left upper and lower sides (namely, direction shown by the arrow M in drawing 6), as the adsorption piece 28 described above that it is rockable. Even if the state where it originates in the shape error of the suction grill 4 or the error with a group of the suction grill 4 and the casing 1, and the suction grill 4 is hard to be contacted by a parallel condition by having done in this way to the permanent magnet 27 arises, Since the adsorption piece 28 is rockable to the right-and-left upper and lower sides (namely, direction shown by the arrow M in drawing 6), the permanent magnet 27 and the adsorption piece 28 will always be adsorbed by a parallel condition. That is, the adsorption power of the permanent magnet 27 can be demonstrated to the maximum extent, and the closed condition of the suction grill 4 can always be held certainly. Therefore, while being able to aim at expansion of the design flexibility of suction grill 4 grade, and reduction of component cost, it becomes easy [selection of the permanent magnet 27] (that is, a cheap thing and a flexible thing are employable).

[0025]The following operation effects are obtained in the floor type air conditioner constituted as mentioned above.

[0026]Since it changes the locking tool 22 which constitutes the opening regulating means 17 into the state where it was pushed into the inner direction in both sides of the casing 1, at the time of stoppage of the suction grill 4 as shown in drawing 8, It does not become the obstacle of the indoor air W inhaled via the suction grill 4, and there is no possibility of increasing distribution resistance and a sound.

[0027]If dust etc. adhere to the filter 15 by operation of an air conditioner and blinding is caused, it is necessary to exchange the filter 15 from the place which influences the capability of an air conditioner. Although the open operation of the suction grill 4 is carried out at this time, As the locking tool 22 which constitutes the opening regulating means 17 is made to slide to the front in connection with the open operation of the suction grill 4 and it is shown in drawing 9, The suspending portion 22b engages with the locking hole 21, and it is regulated by the size in which the detaching operation of said filter 15 has a possible opening of the suction grill 4 and which cannot insert fingers. In this state, although the filter 15 can be easily pulled out from the upper part side of the suction grill 4 or can be inserted, in order for the opening of the suction grill 4 to make it regulate, it is lost that a user inserts fingers in the method of the inside of the casing 1 carelessly. That is, although exchange of the filter 15 can be performed easily, it is lost that a user's fingers touch the rotary machine of the fan 6 grade located in the inner direction of the suction grill 4, and safety's improves.

[0028]By the way, only by loosening without unscrewing said fixing screw 24, although maintenance inspection to the apparatus (for example, the fan 2, piping, etc.) which opens the suction grill 4 wide and is located in an inner direction may be performed, as shown in drawing 10, in that case, combination with the locking tool 22 and the fixture 23 is canceled. Therefore, opening regulation will be canceled, and the suction grill 4 will be opened wide freely, and can perform said maintenance inspection work easily.

[0029]

[Effect of the Invention]While regulating the opening of the suction grill 4 by the opening regulating means 17 in the size in which the detaching operation of the filter 15 is possible and which cannot insert fingers according to the invention in this application, Since it enables it to cancel this regulation, while being able to perform filter replacement easily, If touching the rotary machine of the fan 2 grade carelessly located in the inner direction of the suction grill 4 is lost and regulation by the opening regulating means 17 is canceled, The suction grill 4 can be opened freely, maintenance inspection work to the apparatus allocated by the method of the inside of

the casing 1 can be performed easily, and there is an outstanding effect that reservation of safety and improvement in the workability at the time of maintenance inspection can be reconciled.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is a perspective view showing the state where the suction grill of the floor type air conditioner concerning the embodiment of the invention in this application was opened.

[Drawing 2]It is drawing of longitudinal section of the floor type air conditioner concerning the embodiment of the invention in this application.

[Drawing 3]It is an important section expanded sectional view of the floor type air conditioner concerning the embodiment of the invention in this application.

[Drawing 4]It is an expansion perspective view showing the opening regulating means in the floor type air conditioner concerning the embodiment of the invention in this application.

[Drawing 5]It is a front view showing other examples of the fixture which constitutes the opening regulating means in the floor type air conditioner concerning the embodiment of the invention in this application.

[Drawing 6]It is a perspective view showing the relation between the adsorption piece in the floor type air conditioner concerning the embodiment of the invention in this application, and a permanent magnet.

[Drawing 7]It is an exploded perspective view for explaining the mounting state of the adsorption piece in the floor type air conditioner concerning the embodiment of the invention in this application.

[Drawing 8]It is a front view showing the opening regulating means in the closed condition of the suction grill in the floor type air conditioner concerning the embodiment of the invention in this application.

[Drawing 9]It is a front view showing the opening regulating means in an open operation state of the suction grill in the floor type air conditioner concerning the embodiment of the invention in this application.

[Drawing 10]It is a front view showing the deregulation state of the opening regulating means in the floor type air conditioner concerning the embodiment of the invention in this application.

[Description of Notations]

1 --- a casing and 2 --- a fan and 3 --- a heat exchanger and 4 --- a suction grill and 5 --- a blow-off grill and 15 --- a filter and 17 --- an opening regulating means and 21 --- a locking hole and 22 --- a locking tool and 23 --- a fixture and 24 --- a fixing screw and 25 --- a notched hole and 26 --- an engaging hole and 26a --- a narrow-diameter hole and 26b --- a wide-diameter hole.

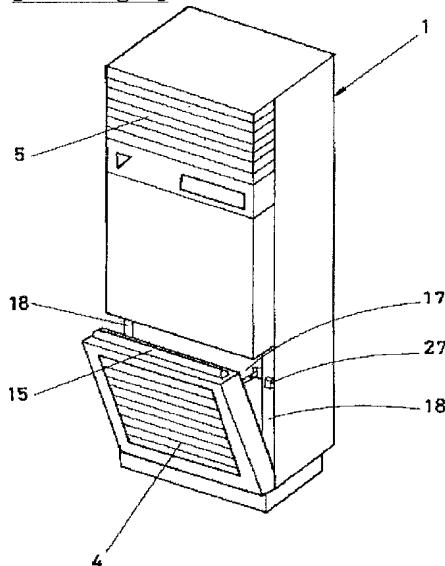
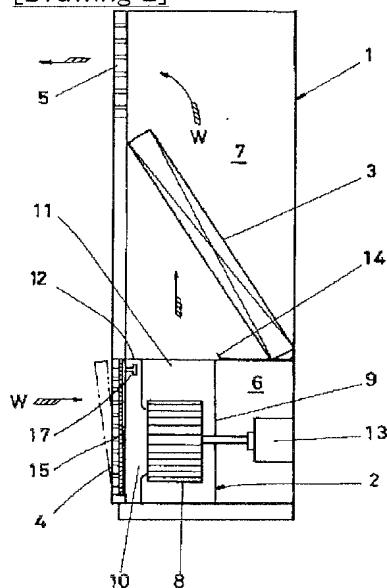
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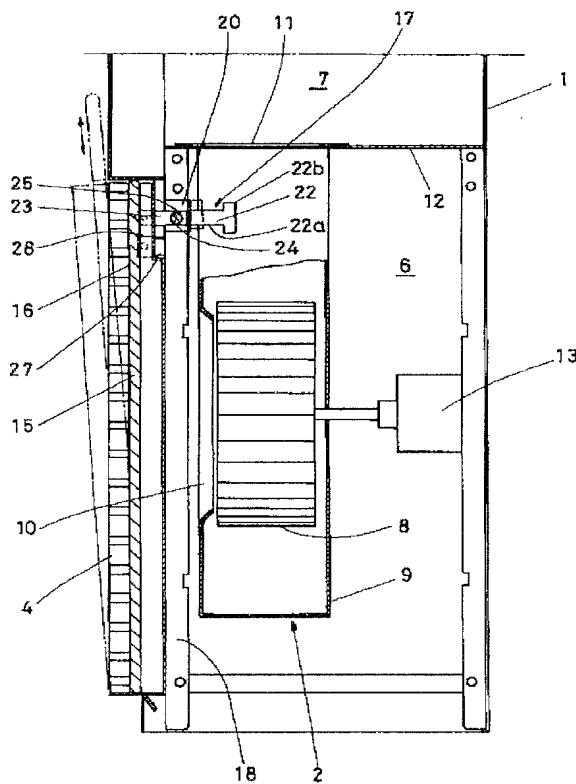
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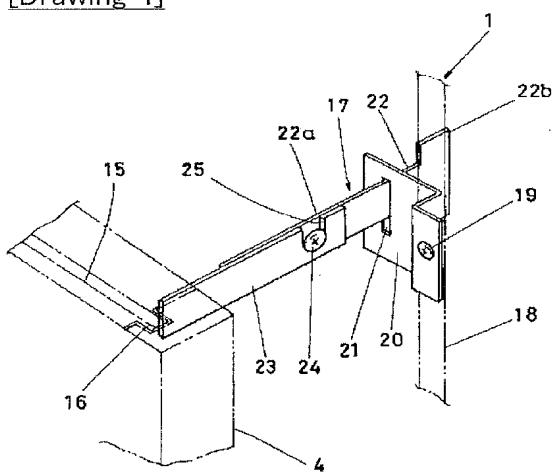
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DRAWINGS

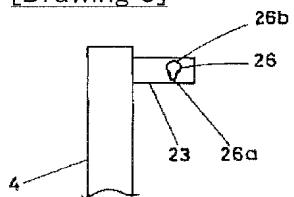
[Drawing 1]**[Drawing 2]****[Drawing 3]**



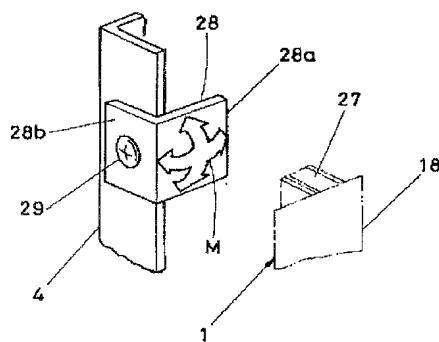
[Drawing 4]



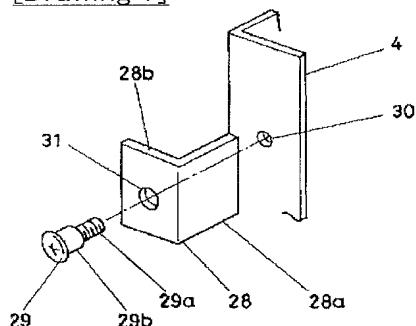
[Drawing 5]



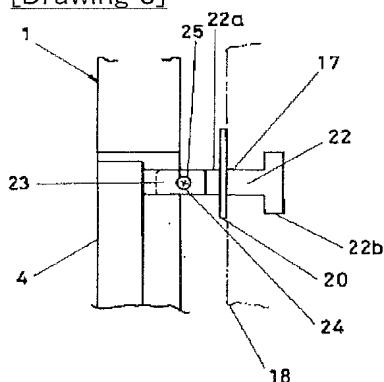
[Drawing 6]



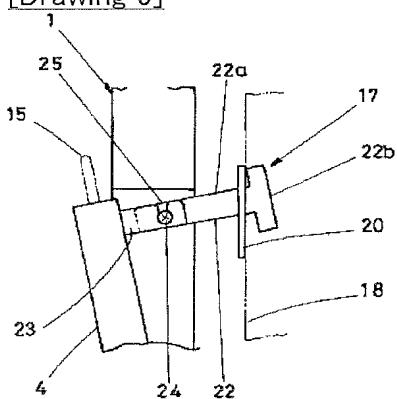
[Drawing 7]



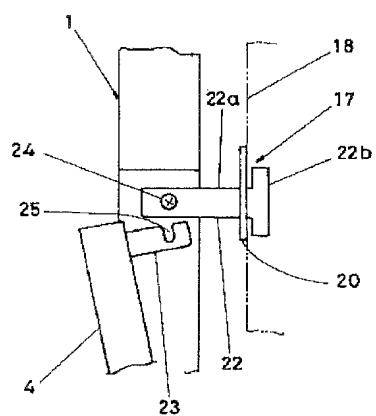
[Drawing 8]



[Drawing 9]



[Drawing 10]



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(19)日本国特許庁 (JP)

(12) 公開特許公報 (A)

(11)特許出願公開番号

特開平10-141698

(43)公開日 平成10年(1998)5月29日

(51)Int.Cl.⁶

F 24 F 1/00

識別記号

401

F I

F 24 F 1/00

401C

401D

審査請求 未請求 請求項の数4 OL (全6頁)

(21)出願番号

特願平8-292896

(22)出願日

平成8年(1996)11月5日

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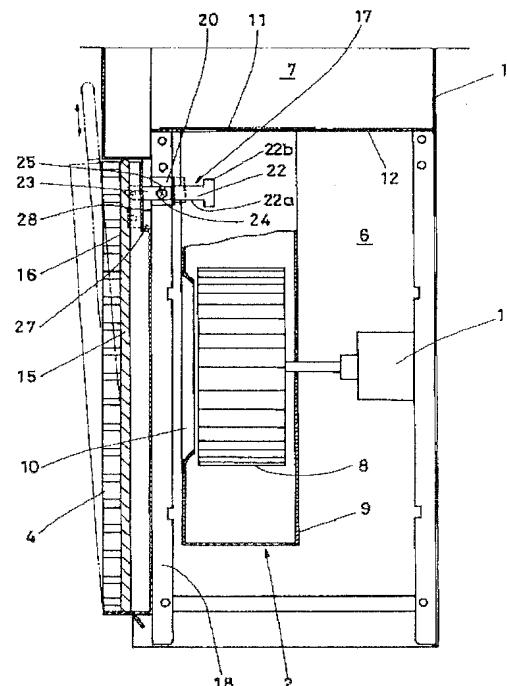
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(54)【発明の名称】 床置型空気調和機

(57)【要約】

【課題】 吸込グリルの開度を規制するとともに該開度規制を解除できるようにすることにより、フィルター交換時における安全性の確保と保守点検時の作業性の向上との両立を図る。

【解決手段】 ケーシング1内に送風機2および熱交換器3を配設してなり、前記ケーシング1前面に、前記送風機2の前面側に位置し且つ着脱自在なフィルター15を備えた吸込グリル4を開閉自在に設けた床置型空気調和機において、前記吸込グリル4と前記ケーシング1との間に、前記吸込グリル4の開度を前記フィルター15の着脱操作が可能であり且つ手指の挿入が不可能な大きさに規制するとともに該規制を解除することのできる開度規制手段17を介設して、フィルター交換時における安全性の確保と保守点検時の作業性の向上との両立を図るようにしている。



【特許請求の範囲】

【請求項1】 ケーシング(1)内に送風機(2)および熱交換器(3)を配設してなり、前記ケーシング(1)前面に、前記送風機(2)の前面側に位置し且つ着脱自在なフィルター(15)を備えた吸込グリル(4)を開閉自在に設けた床置型空気調和機であって、前記吸込グリル(4)と前記ケーシング(1)との間に、前記吸込グリル(4)の開度を前記フィルター(15)の着脱操作が可能であり且つ手指の挿入が不可能な大きさに規制するとともに該規制を解除することができる開度規制手段(17)を介設したことを特徴とする床置型空気調和機。

【請求項2】 前記開度規制手段(17)を、前記ケーシング(1)側に設けられた係止穴(21)と、該係止穴(21)に対して摺動自在に挿入されるとともに該係止穴(21)に対して前方側への所定ストローク摺動時に係止される係止具(22)と、前記吸込グリル(4)に取り付けられた取付具(23)と、該取付具(23)と前記係止具(22)とを結合する取付ネジ(24)とかからなっていることを特徴とする前記請求項1記載の床置型空気調和機。

【請求項3】 前記取付具(23)には、前記取付ネジ(24)を挿通するとともに一端側が開放された切欠穴(25)を形成したことを特徴とする前記請求項2記載の床置型空気調和機。

【請求項4】 前記取付具(23)には、前記取付ネジ(24)の軸部を挿通する小径穴(26a)と該小径穴(26a)と連通し且つ前記取付ネジ(24)の頭部より大きな内径を有する大径穴(26b)とかなる係合穴(26)を形成したことを特徴とする前記請求項2記載の床置型空気調和機。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本願発明は、床置型空気調和機に関し、さらに詳しくは床置型空気調和機における吸込グリルの開度規制構造に関するものである。

【0002】

【従来の技術】一般に、床置型空気調和機は、縦長の直方体形状のケーシング内に送風機および熱交換器を配設し、前記ケーシングの前面に設けられた吸込グリルから吸い込まれた室内空気を前記熱交換器により冷却あるいは加熱して得られた調和空気を前記ケーシングの前面に設けられた吹出グリルから室内へ吹き出すように構成されている（例えば、実開平1-167544号公報参照）。

【0003】

【発明が解決しようとする課題】ところで、床置型空気調和機においては、熱交換器の風下側（即ち、吹出グリル側）に送風機を配設するタイプと、熱交換器の風上側（即ち、吸込グリル側）に送風機を配設するタイプとの

2種類がある。また、吸込グリルには、吸込空気の除塵を行うためのフィルターが内蔵されているため、フィルターの交換を行う必要があって吸込グリルをケーシングに対して開閉自在とする必要がある。

【0004】ところが、上記したように吸込グリルを開閉自在とした場合、その開度を自由にしておくと、吸込グリルが大きく開操作された時に、その開口部から誤って手を内方に挿入するおそれがあり、内方に送風機等の回転機械が配設されていると、手が回転機械に触れる可能性がある。特に、送風機を熱交換器の風上側であってケーシング内の下部に設けたものの場合、吸込グリルの位置が低くなるところから、上記した不安がより一層顕著となる。

【0005】また、吸込グリルの内方に送風機等の機器が配設されている場合、これらの機器の保守点検を行いう際には、吸込グリルを全開状態とする必要もある。

【0006】本願発明は、上記の点に鑑みてなされたもので、吸込グリルの開度を規制するとともに該開度規制を解除できるようにすることにより、フィルター交換時における安全性の確保と保守点検時の作業性の確保との両立を図ることを目的とするものである。

【0007】

【課題を解決するための手段】本願発明の基本構成では、上記課題を解決するための手段として、ケーシング1内に送風機2および熱交換器3を配設してなり、前記ケーシング1前面に、前記送風機2の前面側に位置し且つ着脱自在なフィルター15を備えた吸込グリル4を開閉自在に設けた床置型空気調和機において、前記吸込グリル4と前記ケーシング1との間に、前記吸込グリル4の開度を前記フィルター15の着脱操作が可能であり且つ手指の挿入が不可能な大きさに規制するとともに該規制を解除することができる開度規制手段17を介設している。

【0008】上記のように構成したことにより、フィルター交換時には、吸込グリル4を開操作するが、その際吸込グリル4は開度規制手段17によりその開度がフィルター15の着脱操作が可能であり且つ手指の挿入が不可能な大きさに規制される。従って、フィルター15の交換は容易に行うことができるが、手指をケーシング1内方に入れることができず、不用意に内方に位置する送風機2等の回転機械に触れるということがなくなる。また、前記開度規制手段17による規制を解除すれば、吸込グリル4は自由に開放できることとなり、ケーシング1内方に配設されている送風機2等の機器の保守点検を容易に行うことができる。

【0009】本願発明の基本構成において、前記開度規制手段17を、前記ケーシング1側に設けられた係止穴21と、該係止穴21に対して摺動自在に挿入されるとともに該係止穴21に対して前方側への所定ストローク摺動時に係止される係止具22と、前記吸込グリル4に

取り付けられた取付具23と、該取付具23と前記係止具22とを結合する取付ネジ24とによって構成した場合、吸込グリル4から吸い込まれる室内空気の邪魔にならない位置に開度規制手段17を設ける事が可能となるとともに構造的にも簡単となる。しかも、工具を用いなければ取付ネジ24を緩めることができないところから、開度規制手段17による規制解除が不用意に行われることがなくなる。

【0010】また、前記取付具23に、前記取付ネジ24を挿通するとともに一端側が開放された切欠穴25を形成し、あるいは前記取付ネジ24の軸部を挿通する小径穴26aと該小径穴26aと連通し且つ前記取付ネジ24の頭部より大きな内径を有する大径穴26bとからなる係合穴26を形成した場合、取付ネジ24を螺脱することなく緩めるだけで取付具23と係止具22との結合が解除（換言すれば、開度規制手段17による規制が解除）されることとなり、操作性が向上するとともに両者の再結合も容易となる。

【0011】

【発明の実施の形態】以下、添付の図面を参照して、本願発明の好適な実施の形態について詳述する。

【0012】この床置型空気調和機は、図1および図2に示すように、縦長の直方体形状のケーシング1内に送風機2および熱交換器3を配設し、前記ケーシング1の前面下部に設けられた吸込グリル4から吸い込まれた室内空気Wを前記熱交換器2により冷却あるいは加熱して得られた調和空気W'を前記ケーシング1の前面上部に設けられた吹出グリル5から室内へ吹き出すように構成されている。つまり、吸込グリル4および吹出グリル5は、ケーシング1前面において下端部および上端部に設けられているのである。

【0013】前記送風機2は、多翼羽根車8をスクローラルタイプのファンケーシング9で被包してなる遠心式送風機とされており、前記吸込グリル4の内方に形成された送風機室6にその吸込口10を前向きとした姿勢で配設されている。そして、前記送風機2の吐出口11は、前記ケーシング1内を前記送風機室6と該送風機室6の上方に位置する熱交換器室7とに仕切る仕切板12に形成された開口13に臨まされている。符号13はファンモータである。

【0014】前記熱交換器3は、前記熱交換器室7内を前後方向に仕切り且つ後下がり傾斜姿勢となるように配設されている。符号14はドレンパンである。

【0015】そして、前記吸込グリル4は、下端側を枢部として前開き可能とされており、その内部にはフィルター15が着脱自在に内蔵されている。該フィルター15は、前記吸込グリル4に形成されたフィルター枠16に対して上端側から挿入および引き出しがれることとなっている。

【0016】前記吸込グリル4と前記ケーシング1との

間には、前記吸込グリル4の開度を前記フィルター15の着脱操作が可能であり且つ手指の挿入が不可能な大きさに規制する開度規制手段17が介設されている。

【0017】該開度規制手段17は、図3および図4に示すように、前記ケーシング1における左右両側角部に設けられた支柱18にビス19により固着された固定板20に設けられた係止穴21と、該係止穴21に対して摺動自在に挿入されるとともに該係止穴21に対して前方側への所定ストローク摺動時に係止される係止具22と、前記吸込グリル4の左右両側に取り付けられた取付具23と、該取付具23と前記係止具22とを結合する取付ネジ24とからなっている。

【0018】前記係止具22は、前記係止穴21に対して摺動自在に挿入されるスライド部22aと、該スライド部22aの内端に一体形成され、前方への所定ストローク摺動時に前記係止穴21に対して内側から係合する係止部22bとからなっている。つまり、係止部22bと係止穴21との係合により吸込グリル4の開度規制がなされることとなっているのである。なお、前記係止穴21をケーシング1の支柱18に直接形成してもよい。

【0019】また、前記取付具23には、前記取付ネジ24を挿通するとともに一端側（即ち、上端側）が開放された切欠穴25が形成されている。なお、該切欠穴25は、取付ネジ24の軸部の外径より大きく、頭部の外径より小さい内径とされている。このように構成したことにより、取付ネジ24を螺脱することなく緩めるだけで、取付ネジ24を切欠穴25から離脱させることができるので、係止具22と取付具23との結合解除あるいは再結合が極めて容易に行えることとなる。

【0020】なお、図5に示すように、前記取付具23に、前記切欠穴25に代えて前記取付ネジ24の軸部を挿通する小径穴26aと該小径穴26aの上部に連通し且つ前記取付ネジ24の頭部より大きな内径を有する大径穴26bとからなる係合穴26を形成するようにしても、上記と同様な作用を期待できる。

【0021】ところで、本実施の形態においては、係止具22および取付具23をケーシング1および吸込グリル4の左右両側に設けて、吸込グリル4の開度が左右両側で等しくなるようしているが、それぞれをケーシング1および吸込グリル4の左右中心部に設けるようにしてもよい。

【0022】さらに、前記吸込グリル4は、図6に示すように、ケーシング1の左右両側に位置する支柱18に固定された永久磁石27と、前記吸込グリル4の左右両側に設けられた吸着片28との吸着力によって閉止状態を保持されることとなっているが、前記吸着片28は、図7に示すように、吸込グリル4に対して段付きボルト29を介して左右上下（即ち、図6において矢印Mで示す方向）に摺動可能に取り付けられている。

【0023】前記吸着片28は、前記永久磁石27に吸

着される吸着部28aと、該吸着部28aから直角に延設され、前記吸込グリル4に対して段付きボルト29により取り付けられる取付部28bとからなっている。一方、前記段付きボルト29は、前記リブ18に形成されたネジ穴30に螺合されるネジ部29aと、該ネジ部29aに連続し且つネジ部29aより大径とされたネジ無し部29bとからなっている。また、前記吸着片28の取付部28bには、前記取付ネジ29のネジ無し部29bが遊嵌される挿通孔31が形成されている。

【0024】上記構成において、吸着片28は、挿通孔31にネジ無し部29bを遊嵌した状態で段付きボルト29によって支柱18に取り付けられることとなっており、吸着片28が上記したように左右上下（即ち、図6において矢印Mで示す方向）に揺動可能とされることとなっている。このようにしたことにより、吸込グリル4の形状誤差あるいは吸込グリル4とケーシング1との組付誤差等に起因して、永久磁石27に対して吸込グリル4が平行状態で当接されにくい状態が生じたとしても、吸着片28が左右上下（即ち、図6において矢印Mで示す方向）に揺動可能とされているため、永久磁石27と吸着片28とは常時平行状態で吸着されることとなる。つまり、永久磁石27の吸着力を最大限に発揮できることとなり、吸込グリル4の閉止状態を常に確実に保持することができるのである。従って、吸込グリル4等の設計自由度の拡大および部品コストの低減を図ることができるとともに、永久磁石27の選定も容易となる（即ち、安価なもの、汎用性のあるものを採用できる）。

【0025】上記のように構成された床置型空気調和機では、次のような作用効果が得られる。

【0026】吸込グリル4の閉止時には、図8に示すように、開度規制手段17を構成する係止具22はケーシング1の左右両側において内方へ押し込まれた状態とされるため、吸込グリル4を介して吸い込まれる室内空気Wの邪魔になることはなく、流通抵抗や音を増大させるおそれはない。

【0027】空気調和機の運転によりフィルター15に塵埃等が付着して目詰まりを起こすと、空気調和機の能力に影響するところから、フィルター15を交換する必要がある。このときには吸込グリル4が開操作されるが、開度規制手段17を構成する係止具22が吸込グリル4の開操作に伴って前方へスライドせしめられ、図9に示すように、その係止部22bが係止穴21と係合して吸込グリル4の開度が前記フィルター15の着脱操作が可能であり且つ手指の挿入が不可能な大きさに規制される。この状態においては、フィルター15を吸込グリル4の上方側から容易に引き出しあるいは挿入することができるが、吸込グリル4の開度が規制させているため、ユーザが不用意にケーシング1内方へ手指を挿入することはなくなる。つまり、フィルター15の交換は容易に行えるが、ユーザの手指が吸込グリル4の内方に位

置する送風機6等の回転機械に触れることはなくなり、安全性が向上するのである。

【0028】ところで、吸込グリル4を開放して内方に位置する機器（例えば、送風機2、配管等）に対する保守点検を行うことがあるが、その際には、前記取付ネジ24を螺脱することなく緩めるだけで、図10に示すように、係止具22と取付具23との結合が解除される。従って、吸込グリル4は開度規制が解除されて、自由に開放されることとなり、前記保守点検作業を容易に行うことができる。

【0029】

【発明の効果】本願発明によれば、吸込グリル4の開度を、開度規制手段17によりフィルター15の着脱操作が可能であり且つ手指の挿入が不可能な大きさに規制するようになるとともに、該規制を解除できるようしているので、フィルター交換が容易に行えるとともに、不意に吸込グリル4の内方に位置する送風機2等の回転機械に触れることがなくなるし、開度規制手段17による規制を解除すれば、吸込グリル4は自由に開放でき、ケーシング1内方に配設された機器への保守点検作業を容易に行うこととなることにより、安全性の確保と保守点検時の作業性の向上とを両立させることができるという優れた効果がある。

【図面の簡単な説明】

【図1】本願発明の実施の形態にかかる床置型空気調和機の吸込グリルを開いた状態を示す斜視図である。

【図2】本願発明の実施の形態にかかる床置型空気調和機の縦断面図である。

【図3】本願発明の実施の形態にかかる床置型空気調和機の要部拡大断面図である。

【図4】本願発明の実施の形態にかかる床置型空気調和機における開度規制手段を示す拡大斜視図である。

【図5】本願発明の実施の形態にかかる床置型空気調和機における開度規制手段を構成する取付具の他の例を示す正面図である。

【図6】本願発明の実施の形態にかかる床置型空気調和機における吸着片と永久磁石の関係を示す斜視図である。

【図7】本願発明の実施の形態にかかる床置型空気調和機における吸着片の取付状態を説明するための分解斜視図である。

【図8】本願発明の実施の形態にかかる床置型空気調和機における吸込グリルの閉止状態での開度規制手段を示す正面図である。

【図9】本願発明の実施の形態にかかる床置型空気調和機における吸込グリルの開操作状態での開度規制手段を示す正面図である。

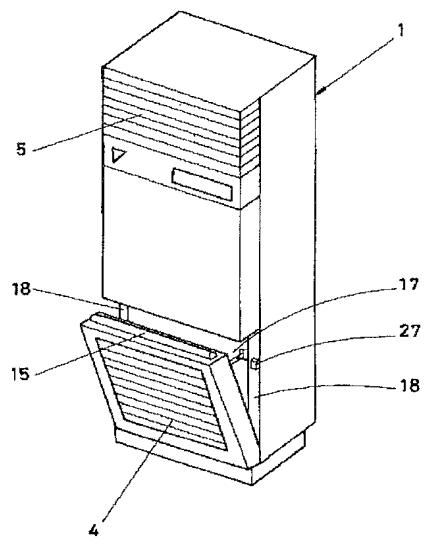
【図10】本願発明の実施の形態にかかる床置型空気調和機における開度規制手段の規制解除状態を示す正面図である。

【符号の説明】

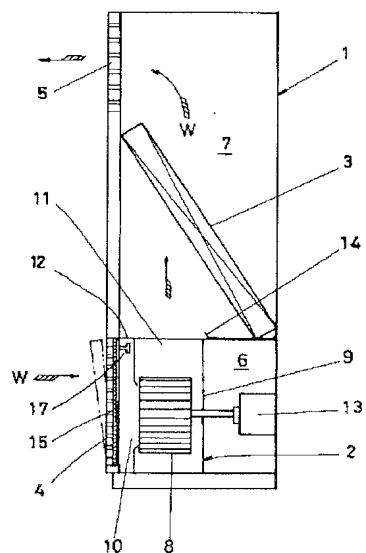
1はケーシング、2は送風機、3は熱交換器、4は吸込グリル、5は吹出グリル、15はフィルター、17は開*

*度規制手段、21は係止穴、22は係止具、23は取付具、24は取付ネジ、25は切欠穴、26は係合穴、26aは小径穴、26bは大径穴。

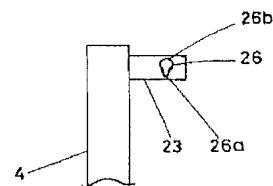
【図1】



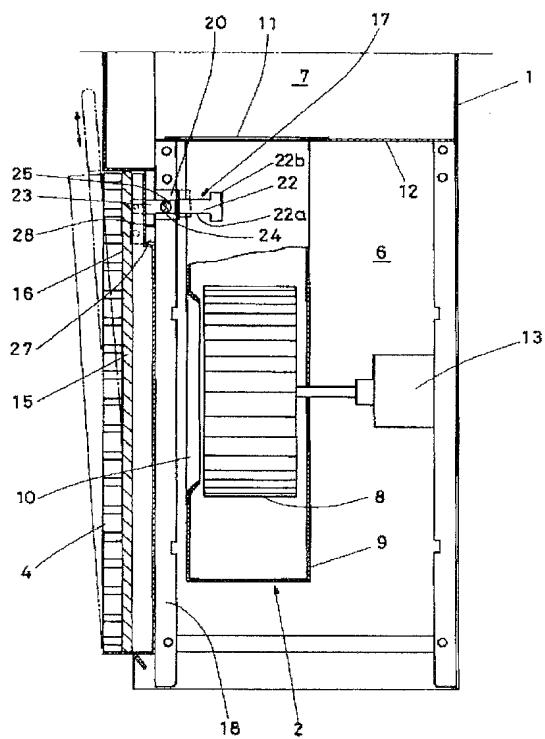
【図2】



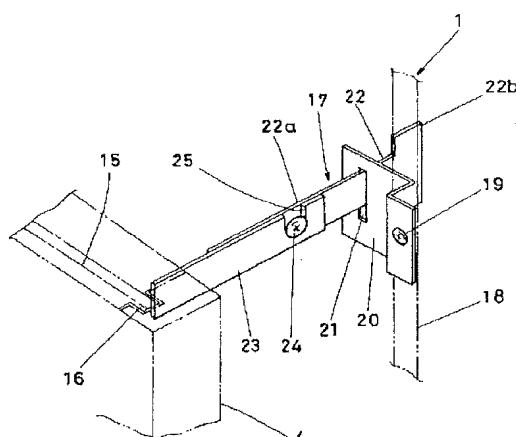
【図5】



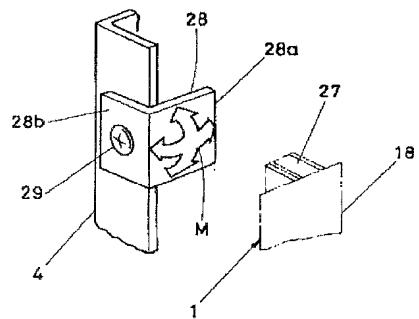
【図3】



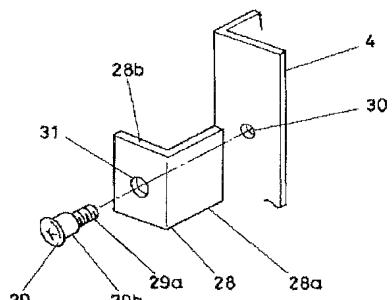
【図4】



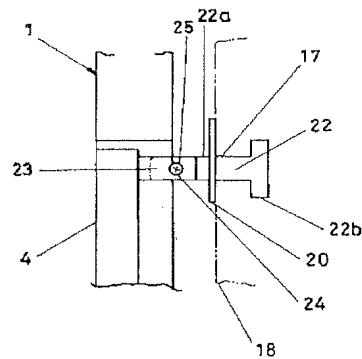
【図6】



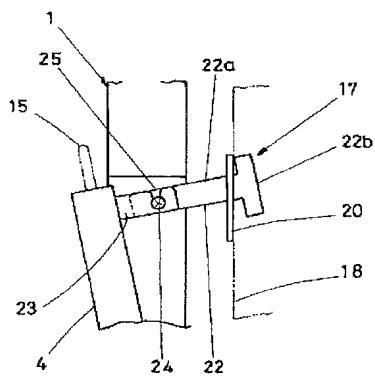
【図7】



【図8】



【図9】



【図10】

